

## IMAGES IN INTERVENTION

# Transseptal Transcatheter Implantation of a Third-Generation Balloon-Expandable Valve in Degenerated Mitral Bioprosthesis

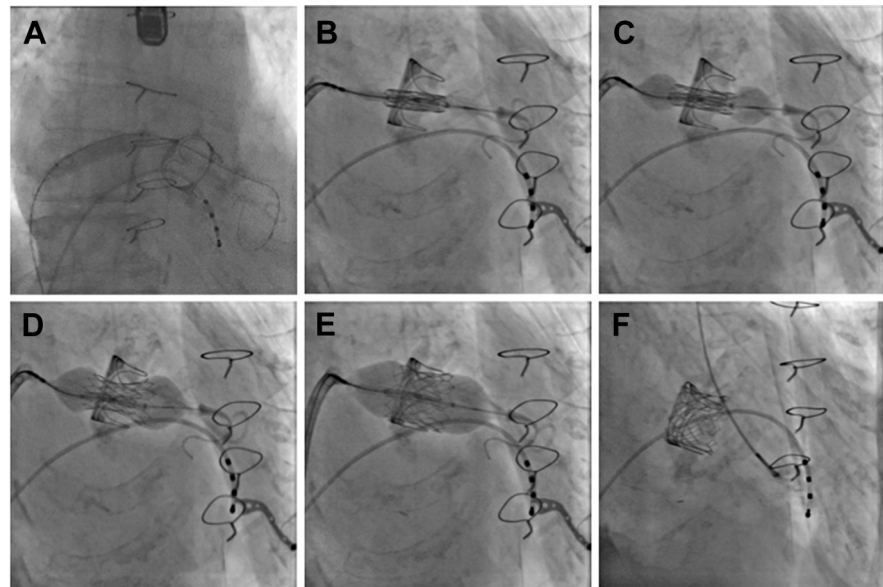


David Jochheim, MD,\*† Alexander Khandoga, MD,\* Axel Bauer, MD,\*† Moritz Baquet, MD,\* Hans Theiss, MD,\*† Jan Schenzle, MD,\* Joerg Hausleiter, MD,\*† Steffen Massberg, MD,\*† Julinda Mehilli, MD\*†

**A** 84-year-old woman with known hepatic cancer, severe pulmonary hypertension, and atrial fibrillation on phenprocoumon was admitted for recurrent congestive heart failure

in our institution. Nine years earlier, she underwent mitral valve replacement with a 25-mm Perimount Magna (Edwards Lifesciences, Irvine, California) due to severe insufficiency (**Figures 1A to 1F**). On

**FIGURE 1** Procedural Angiograms

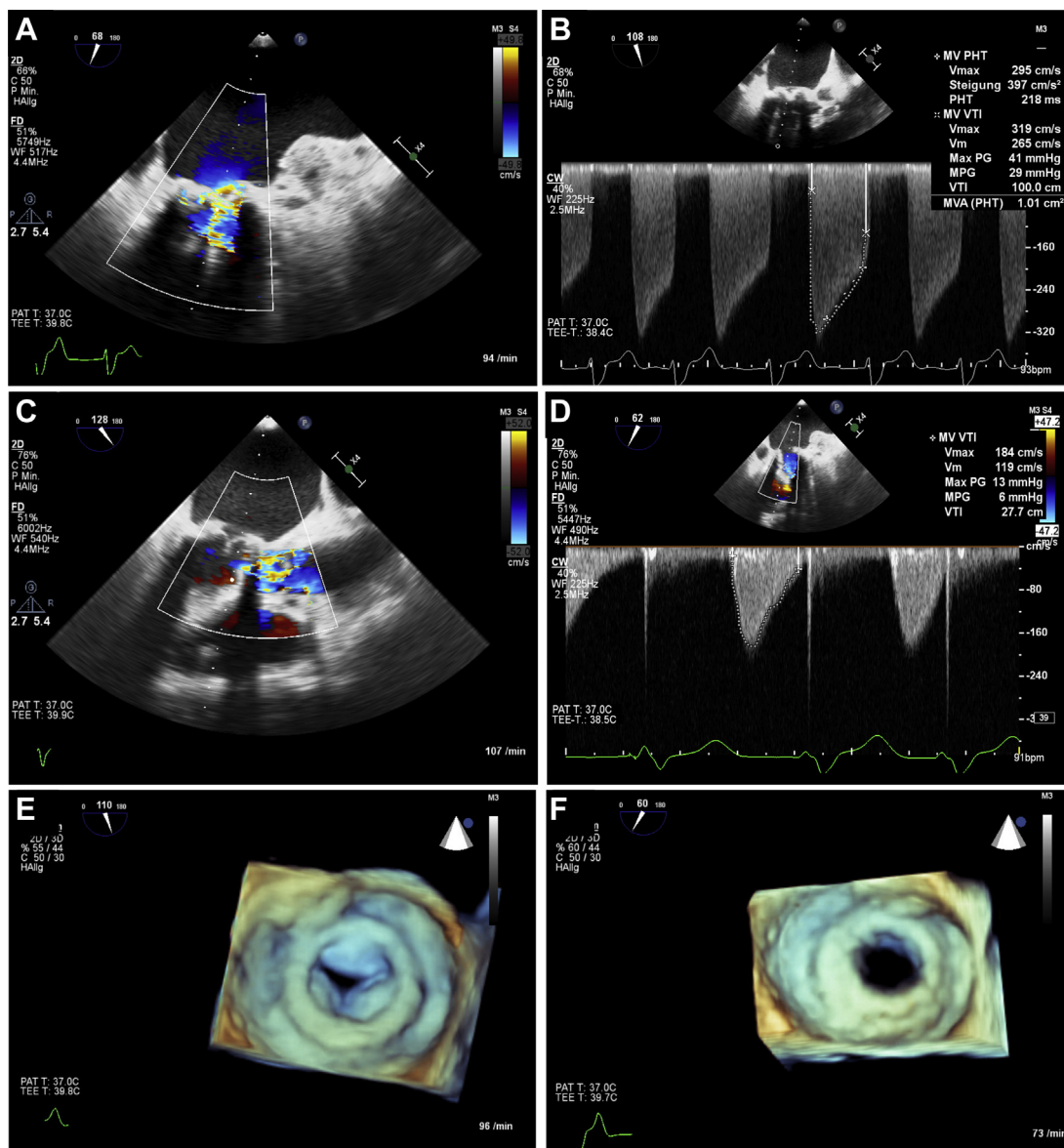


(**A, B**) Transseptal puncture and correct positioning of the valve within the bioprosthesis. (**C to E**) Balloon inflation and valve expansion under rapid pacing. (**F**) Final results of SAPIEN 3 valve within the Perimount Magna bioprosthesis (Edwards Lifesciences). See [Online Video 1](#).

From the \*Department of Cardiology, Munich University Clinic, Ludwig-Maximilian University, Munich, Germany; and the †Munich Heart Alliance at Deutsches Zentrum für Herz-Kreislauf-Forschung E.V., Munich, Germany. Prof. Hausleiter has received speaker honoraria from Abbott Vascular and Edwards Lifesciences. Prof. Mehilli has received modest lecture fees from Abbott Vascular, Terumo, and Edwards Lifesciences. All other authors have reported that they have no relationships relevant to the contents of this paper to disclose.

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**FIGURE 2** Echocardiographic Measurements



Echocardiographic measurements of mitral bioprosthesis before (**A, B**) and after (**C, D**) initial implantation of the SAPIEN 3 valve (Edwards Lifesciences) in mitral position. Prosthesis orifice area before (**E**) and after (**F**) the procedure.

admission, the patient was in New York Heart Association (NYHA) functional class IV with concomitant leg edema. Echocardiography demonstrated good left ventricular function, a dilated left atrium, and severe mitral valve stenosis with a mean gradient of 29 mm Hg and a valve orifice area of 1.01 cm<sup>2</sup> (**Figures 2A and 2B**). Computed tomography examination showed a calcified bioprosthesis with a calculated

inner prosthesis area of 3.7 cm<sup>2</sup>. Based on an estimated EuroSCORE II of 10.62%, the heart team recommended a transcatheter valve-in-valve procedure with a 23-mm SAPIEN 3 balloon-expandable valve (BEV) via a percutaneous transseptal approach. With the patient under general anesthesia and with transesophageal echocardiographic guidance, we performed a successful implantation of a 23-mm SAPIEN 3 (procedural

angiograms). Post-implantation echocardiography revealed a mean gradient of 6 mm Hg, a mitral valve orifice area of 2.4 cm<sup>2</sup> (Figures 2C to 2F), and the absence of any periprosthetic regurgitation (Online Video 1). Seven days after index procedure, the patient was discharged with significant physical improvements and NYHA functional class II.

This interesting case is the first description of a transseptal valve-in-valve procedure with the third-generation BEV in a degenerated mitral bioprosthesis. Valve-in-valve implantation in the mitral position is

becoming an increasingly accepted treatment option for patients deemed unsuitable for a redo operation (1,2). With this case, we confirm the safety and hemodynamic efficacy of transseptal transcatheter implantation with the SAPIEN 3 BEV.

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**REPRINT REQUESTS AND CORRESPONDENCE:** Dr. David Jochheim, Interventional Cardiology Department, Klinikum der Universität München, Marchioninistr. 15, 81377 Munich, Germany. E-mail: [David.jochheim@med.uni-muenchen.de](mailto:David.jochheim@med.uni-muenchen.de).

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## REFERENCES

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**KEY WORDS** mitral valve, Sapien 3, valve-in-valve

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 **APPENDIX** For a supplemental video, please see the online version of this article.